MIKHAYLOV, N.V.; LIKHTGEYN, A.W.

Investigation of the complete rheological curves and a formula fer the calculation of the effective viscosity of structurized liquids with a molecular-kinetic interpretation of the component terms.

Koll.zhur.17 no.5:364-378 S-0 '55. (MLRA 9:1)

1.Vseseyusnyy nauchno-issledovatel'skiy institut pe streitel'stvu. Hoskva. (Rheology)

ZAKANDIN, Wiktor Il'ich; PEREL'MAN, Boris Borisovich; LIKHTGEXM. M.P., red.;
MASLOV. N.A., red.izd-va; IAGUTINA, I.W., tekhn.red.; TOKER, A.M.,
tekhn.red.

[Economic accountability for job superintendents and foremen;
practices of the Cherepovets Metallurgical Building Trust of the
Ministry of Metallurgical and Chemical Plant Construction of the
U.S.S.R.] Knoziastvennyi raschet proizvoditelia rabot i mestera
na stroluchastke; opyt raboty treats Cherepovetsmetallurgstrol
Ninisterstva stroktel'stva predpriiatii metallurgicheskoi i
khimicheskoi promyshlennosti SSSR. Moskva, Oos. izd-vo lit-ry po
stroit. i arkhit., 1957. 59 p.

(Gonstruction industry--Accounting)

LONDARENKO, O.M.; GOLOVINSKAYA. S.M. [Holovins'ka, S.M.]; SAVCHENKO, N.M.: LIKHTIK, O.G. [Likhtyk, O.H.]; BARANSKAYA, S.F. [Barans'ka, S.F.]; RACHINSKAYA, T.V. [Rachyns'ka, T.V.]

Proposals of efficiency promoters of the "Children's Clothing" Factory No.4 in Kiev. Leh. prom. no.3:74-76 J1-S '65. (MIRA 18:9)

LIKHTIN, R.M.

Mere attentien to safety measures in communications enterprises. Vest.sviazi 16 no.7:28-29 Jl '56. (MIRA 9:9)

1.Nachalinik Stavrepeliskoy mezhdugoredney telefenney stantsii i geredskey telefenney stantsii.

(Telecemmunication--Safety measures)

AUTHOR:

Likhtin, R.M., Supervisor

sov/111-58-12-23/38

TITLE:

How We Provide Telephone Facilities for the Population (Kak

my obsluzhivayem naseleniye telefonnoy svyaz'yu)

PERIODICAL:

Vestnik svyazi, 1958, Nr 12, pp 22-24 (USSR)

ABSTRACT:

In January 1955, the Stavropol' long-distance telephone exchange was combined with the automatic city telephone exchange to form one economic enterprise; consequently the connecting lines between both exchanges were increased. Old telephone apparatus are being replaced by new ones manufactured by the "VEF" plant. The new organization made a profit of 104.6 % according to the production plan during the first seven months of 1958, while the productivity of the employees is rated at about 104.1 %. It was possible to enlarge the telephone network with the aid of interested enterprises and to improve the telephone service for the population. Ten metal telephone booths were installed and long-distance telephones were installed at information offices such as at the RR station, In this way, the information of ice clerk serves at the same time as a telephone operator. These achievements were possible

Card 1/2

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SOV/111-58-12-25/55

How We Provide Telephone Facilities for the Population

by proper training of employees, on-the-job training of female telephone operators and socialist competition among

the various employee groups.

There are 4 photos.

ASSOCIATION:

Stavropol'skaya gorodskaya i mezhdugorodnaya telefonnaya stantsiya (Stavropol' City and Long-Distance Telephone Ex-

change)

Card 2/2

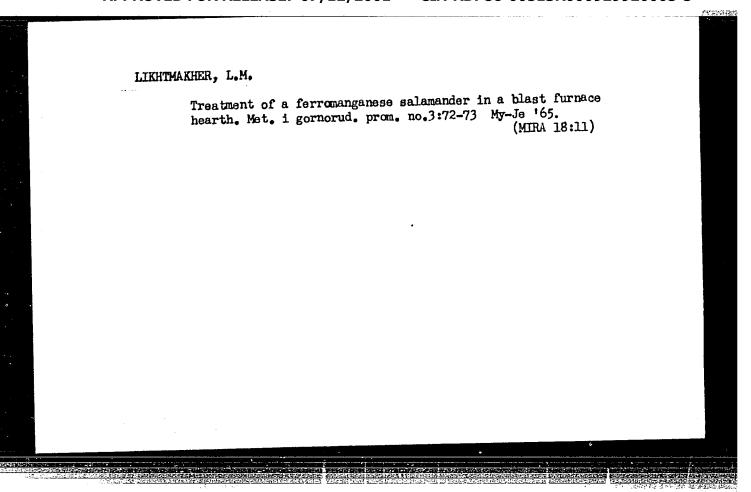
ZIL'BERMAN, A.A.; LIKHTMAKHER, L.M.

Straightening of a blast furnace. Biul. TSIICHM no.10:31-34 '60.

(MIRA 15:4)

1. Yuzhdomnaremont.

(Elast furnaces--Maintenance and repair)

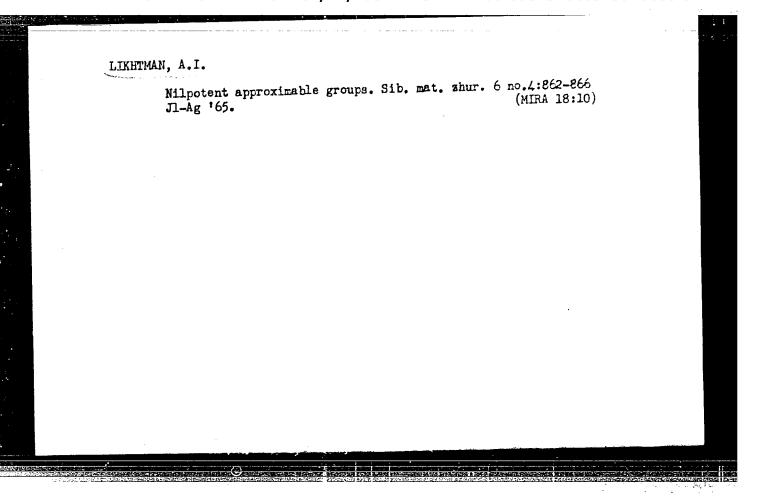


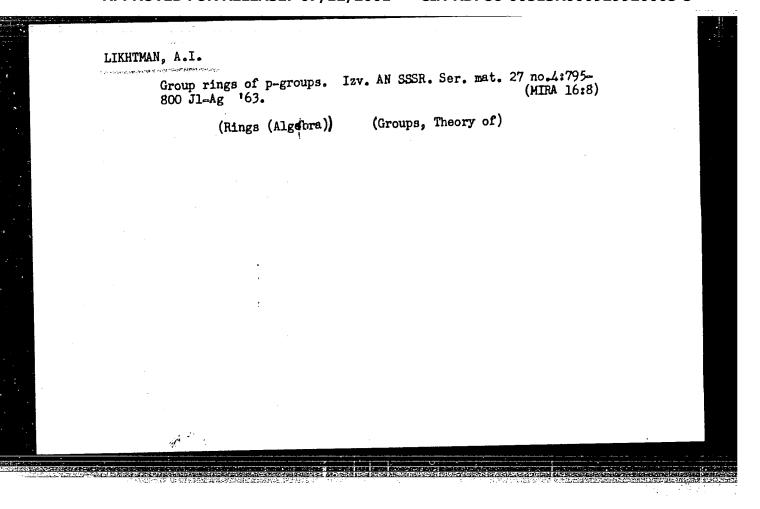
VZNUZDAYEV, N.A.; KAMPACHEVSKIY, L.O.; Prinimali uchastiye: LIKHTMAKHER, S.N.; GRACHEV, A.V.; STEFIN, V.V.; DEMBO, A.T.; SHEREMET, B.V.

Hydrophysical: properties and water balance of forest soils in the central Kamchatka Valley. Pochvovedenia no.10:30-43 0 '61. (MIRA 14:9)

1. Laboratoriya lesovedeniya AN SSSR. (Kamchatka Valley-Forest soils)

LIKHTMAN, A.I. A generalization of strictly regular rings. Sib. nat. zhur. 4 no.3:641-646 My-Je '63. (MIRA 16:6) (Rings (Algebra))





LIKHTMAN, A.I.

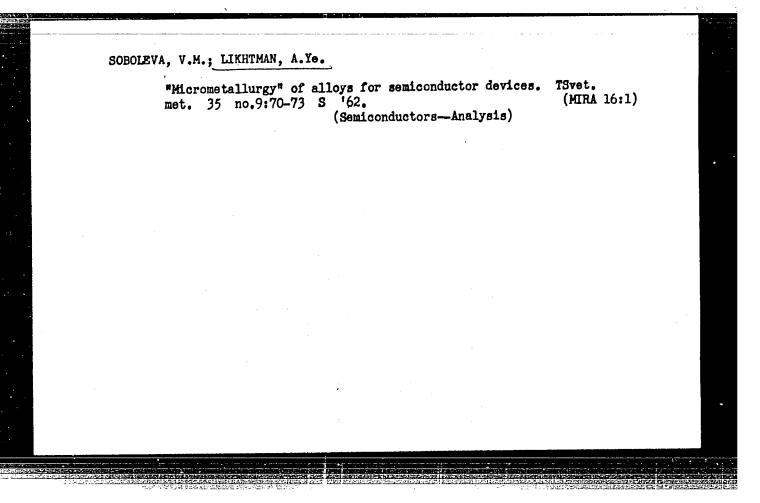
Normal divisors of the multiplicative group of a body. Dokl. AN SSSR 152 no.4:812-815 0 '63. (MIRA 16:11)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova. Predstavleno akademikom P.S. Novikovym.

GUDIVOK, P.M. (Uzhgorod); DROBOTENKO, V.S. (Uzhgorod); LIKHTMAN, A.I. (Uzhgorod)

Representations of finite groups over a ring of classes of substractions modulo m. Ukr. mat. zhur. 16 no.1:82-88 '64. (MIRA 17:5)

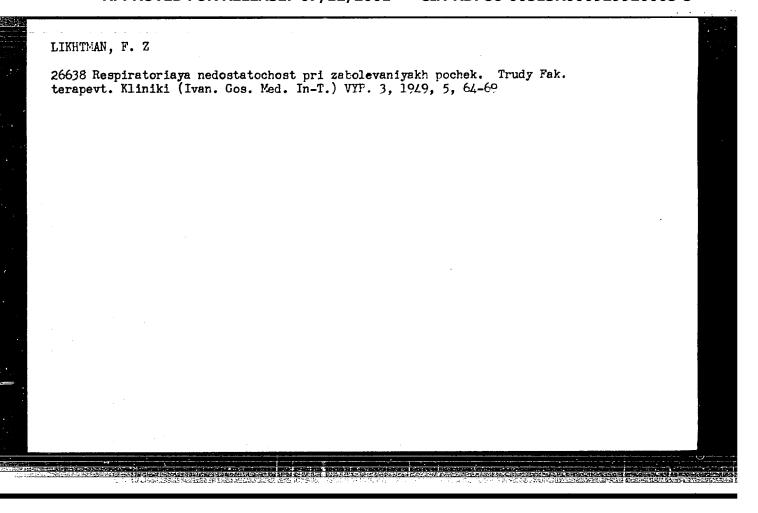
LIKHTMAN, A.I. Subgroups of the multiplicative group of a body. Sckl. AN SSSR 163 no.2:293-294 Jl 165. (MIRA 18:7) 1. Submitted March 10, 1965.



LIMITMAN, F. Z.

26637 Kliniko-zkspertnye dannye o gipertonicheskoy bolezni. Trudy Fak. terapevt. klinili (Ivan gos. med. IN-T) VYP 3, 1949, s 19-28

SO: LETOPIS' NO. 35, 1949



LIKHTMAN, F. Z. I XALEZOUA E I

26639 Osobennosti mocheobrazovajnya pri alimentariov distrofii. Trudy fak. terapevt. kliniki (Ivan. gos. med. IN-T) VYP 3, 1949, s. 70-74

SO: LETOPIS' NO. 35, 1949

Vacuum extractor in controlling intra- and postnatal fetal death. Kaz.med.zhur. no.3:88-89 My-Je '62. (MIRA 15:9) 1. Vtoraya gorodskaya bol'nitsa Kazani (zav. akushersko-ginekologi-cheskim otdeleniyem - L.D.Likhtman, glavnyy vrach - N.S.Utkina). (OESTETRICS-EQUIPMENT AND SUPPLIES) (FETUS, DEATH OF)

KAUFMAN, S.A.: KULIKOV. K.M.; LIKHTMAN, N.P.; KHAYKIN, N.Sh.

Some features of the kinetics of photoconductivity in specimens of high-resistance negermanium doped with gold. Fiz. tver. tela 7 no.32837-840 Mr 165. (MIRA 18:4)

1. 490 -- CS ENI(1)/ENT(E)/EEC(t)/ENP(b)/ENP(t) -P2-6 13P(c) AT/30/36 s/0181/65/007/003/0837/0840 ACCESSION NR: AP5006891 AUTHOR: Kaufman, S. A.; Kulikov, K. M.; Likhtman, N. F.; Khaykin, N. Sh. TITLE: Some features of the kinetics of photoconductivity in high-resistance n-type germanium samples doped with gold SOURCE: Fizika tverdogo tela, v. 7, no. 5, 1965, 837-840 TOPIC TAGS: photoconductivity, germanium, photoionization, electron recombination, photoconductivity relaxation ABSTRACT: The purpose of the investigation was to determine the causes of the discrepancy between the results of L. Johnson (Phys. Rev. v. 117, 1191, 1960) and the results obtained by others for high-resistance n-type germanium doped with gold at temperatures above 100K. To this end, the authors investigated the kinetics of the photoconductivity in samples drawn from the melt by the Czochralski method and containing ~ 1015 cm-3 atoms of gold, compensated with antimony to such a degree that the 0.2 eV level of gold was partially filled with electrons. Light was used to produce ionization. The samples were investigated at temperatures 65 -- 110K. In addition to the usual mechanism of electron recombination, relaxation of photo-Card 1/2

L 49045-65

ACCESSION NR: AP5006891

conductivity was observed, dependent on the concentration of the free carriers, on the singly negatively charged gold atoms, with section 1.5 x 10⁻¹⁷ cm². This process is related to the motion of free carriers in the direction of the contacts and appears when the drift lifetime is shorter than the non-equilibrium electron lifetime. The singularities in the kinetics of photoconductivity in the material are attributed tentatively to the space charge around the contact, localized at the deep level of gold, and causing violation of neutrality as the carriers are drawn out of the sample. It is suggested on the basis of the results that the strong temperature dependence of the time constant of the photoresponse, obtained by L. Johnson and H. Levinstein (at temperatures above 100K) is not a result of a temperature variation of the electron lifetime, and that it is probably due to the small drift time. "The authors are indebted to T. M. Lifshits and S. G. Kalashnikov for valuable discussions." Orig. art. has: 3 figures.

ASSOCIATION: None

SUBMITTED: 24Sep64

ENCL: 00

SUB CODE: EM, MM

NR REF SOV: 006

OTHER: 004

Cord 2/2 00

1:1399 5/190/63/005/002/018/024 B101/B102

AUTHORS:

Zuyev, Yu. S., Pravednikova, S. I., Likhtman, T. V.

TITLE:

Stress dependence of rupture time in the cracking of

rubbers in aggressive media

1 ERIODICAL:

Vysokomolekulyarnyye soyedineniya, v. 5, no. 2, 1963,

262-268

TEXT: The correlation between static fatigue and corresion cracking examined by determining the dependence of the lifetime τ_1 on the state. at 0.001-0.002 ozone concentration in natural and synthetic rubbern with and without filler or plasticizer. The tangent b of the angle of inclina tion of the straight line log τ_1 = f(log σ), was determined. The

deformation was kept so low that its effect on the structure was negligible. Results: In natural rubber and CKE(SKB) rubber without filler b was ~0.35; in polar rubbers, such as CKH-26 (SKN-26) and matter b was 0.80 and 0.75, respectively. With higher polarity, e.g., in CKH-40 (SKN-40) rubber, b increased to 1.45. Dilution of the rubber

Card 1/2

S/190/63/005/002/018/024 B101/B102

Stress dependence of rupture ...

a filler inert to ozone resulted in an increase of b. This is due to changes in the stress distribution, chemical activity and intermolecular interactions. b = boexp(-kv₁), where bo is the b of the non-filled rubber, and $v_1 = (v - v')/v$; v is the volume of the rubber, v' is the volume of the ingredient. A distinct parallelism was observed between ozone cracking and static fatigue. For both τ_1 = Bo^{-b}. Thus, the corrosive breakdown of rubbers under stress is only a special case of static fatigue. There are 8 figures.

ASSOCIATION:

Nauchno-issledovatel'skiy institut rezinovoy

promyshlennosti (Scientific Research Institute of the

Rubber Industry)

SUBMITTED:

September 7, 1961

Card 2/2

ABRAMOVA, N.B.; LIKHTMAN, T.V.; NEYFAKH, A.A.

Study of mechanisms of the intensification of respiration in the embryonal development of fish. Thur. evol. biokhim. i fiziol. 1 no.3:227-233 My-Je 165. (MIRA 18:7)

1. Gruppa kosmicheškov biologii i biofiziki razvitiva Instituta morfologii zhivotnykh imeni Severtsova AN SSSR, Moskva.

ZUIEV, Ku.S.; PRAVEDNIKOVA, S.I.; LIKHTMAN, T.V.

Stress dependence of rupture time in the cracking of rubbers in aggressive media. Vysokom.soed. 5 no.2:262-268 F '63.

(MIRA 16:2)

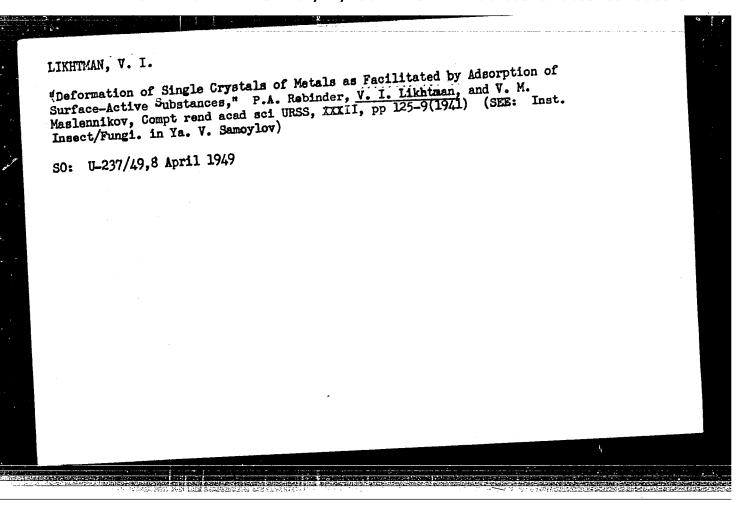
1. Nauchno-issledovatel'skiy institut rezinovoy promyshlemnosti.

(Rubber—Testing) (Strength of materials)

SANZHAROVSKIY, A.T.; GRINYUTE, G.A.; LIKHTMAN, T.V.

Effect of the loading time and temperature on the strength of three-dimensional polymers. Dokl. AN SSSR 157 no.5;1196-1198 Ag '64.

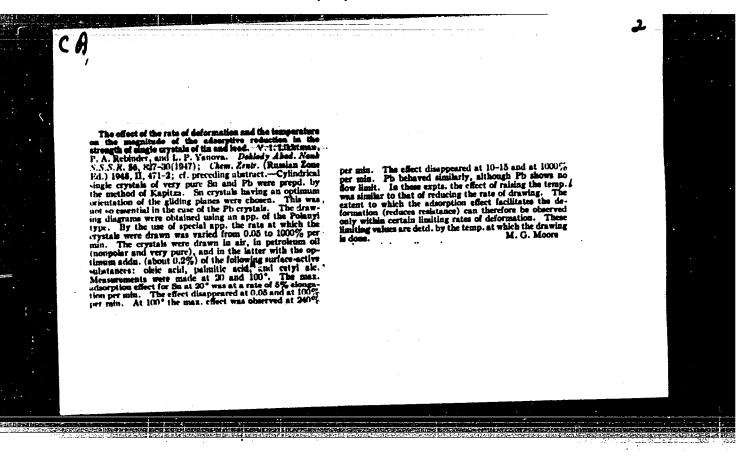
1. Institut fizicheskoy khimii AN SSSR. Predstavleno akademikom P.A. Rebinderom.



LIKHTMAN, V. I.

"Effect of Clide-plane Orientation in Single Crystals of Tin on their Adsorption-promoted Deformation," V. I. Likhtman, P. A. Rebinder, Compt rend acad sci URSS XXXII, pp 130-1 (1941) (SEE: Inst. Insect/Fungi. in Ya. V. Samoylov)

SO: U-237/49, 8 April 1949



LIKHTMAN, V. I.

USSR/Metals

Jun 1947

Crystallography
Deformation

"Regularities in the Deformation of Metallic Monocrystals and the Presence of Surface-Active Materials," P. A. Rebinder, Academician; V. I. Likhtman, 4 pp

"Dok Akad Nauk SSSR, Nova Ser" Vol LVI, No 7

Concludes that effects of action of an absorbent substance - reduction of limit of flow, and decrease of coefficient of hardening - show a general relationship to concentration of oleic acid. Illustrated with microphotographs and two graphs.

PA 60T71

LIKHTMAN, V. I.

FA 60T75

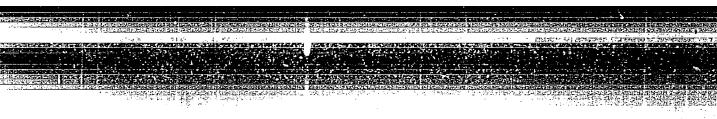
USSR/Metals Orystallography Zinc Jul 1947

"New Phenomenom of the Elastic Interaction in Single Crystals of Zinc Subjected to Plastic Flow," V. I. Likhtman, P. A. Rebinder, Academician, Sec Dispersed Systems, Inst Phys Chem, Acad Sci USSR, 4 pp

"Dok Akad Nauk SSSR, Nova Ser" Vol LYII, No 1

Continues previous studies on elastic qualities of monocrystals and discusses question of whether an undeformed monocrystal can be considered as an ideal plastic body.

60175



LIKHTMAN, V. I.

USSR/ Electricity Discharges, Electric Metals

Feb 1948

"Structural Variations in a Metal Acted Upon by a Condensed Electrical Discharge G. I. Pokrovskiy, V. I. Likhtman, Inst Phys Chem, Acad Sci USSR, Mil Engin Red Banner Acad imeni V. V. Kuybyshev, 22 pp

"Dok Akad Nauk SSSR, Nova Ser " Vol LIX, No 4

Gives details of preliminary experiments on various metals using highly condensed energy and shows very satisfactory results,

PA 43/43T14

PA 45/49T18

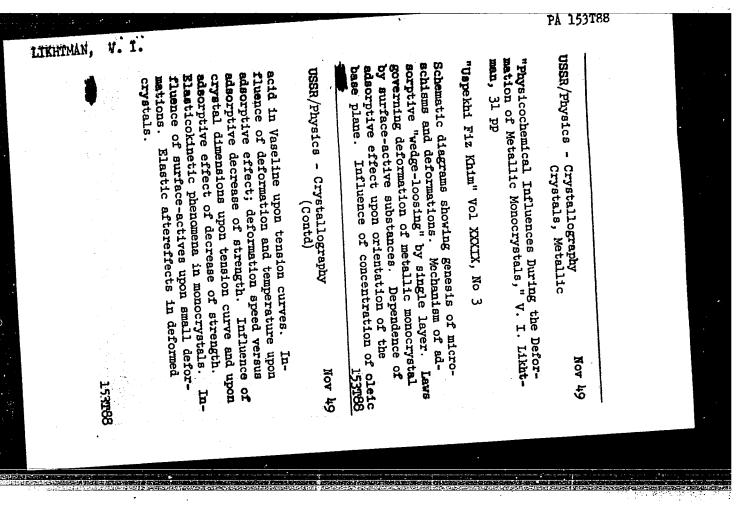
LIKHTMAN, V. I.

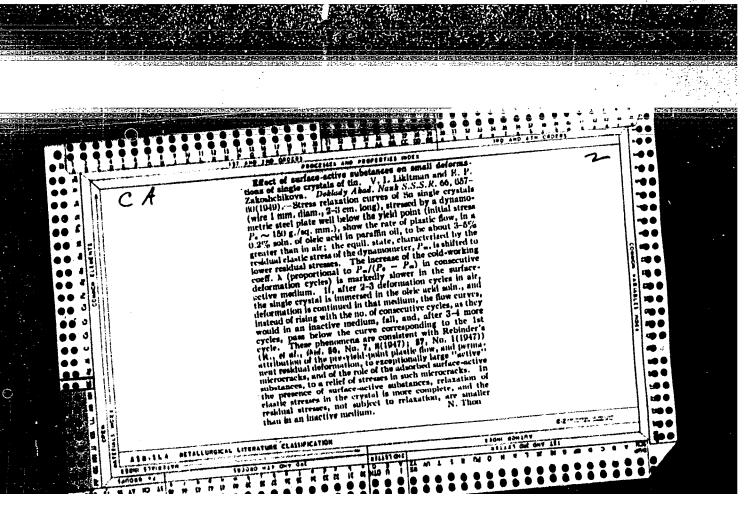
USSR/Chemistry - Colloids Chemistry - Relaxation Jan/Feb 49

"Measurement of Relaxation in Structurally Colloidal System," S. Ya. Veyler, W. I. Likhtman, P. A. Rebinder, Inst Physicochem, Acad Sci USSR, 3 pp

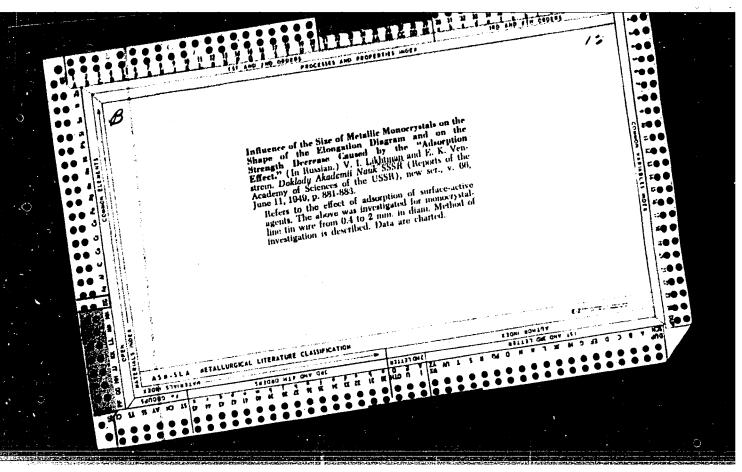
"Kolloid Zhur" Vol XI, No 1

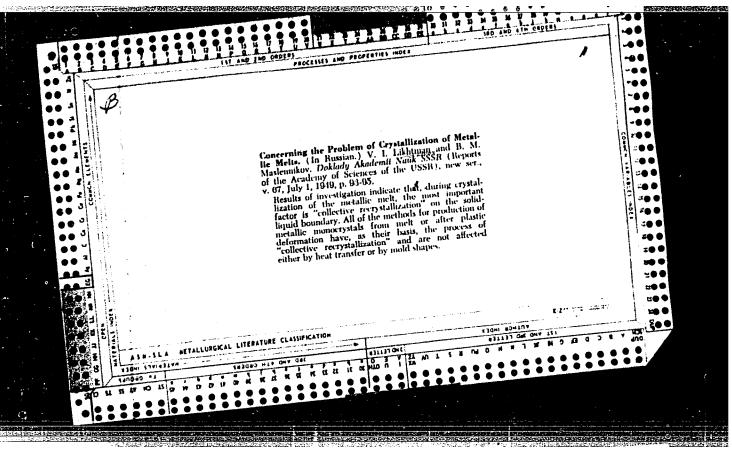
Subject method for measuring period of relaxation is based on tangential mixing of plates in colloidal system under conditions of limited constant deformassion. Shows lack of relationship between period of relaxation and amount of initial elastic deformation in construction of hydrozol gelatin. Submitted 20 Mar 48.

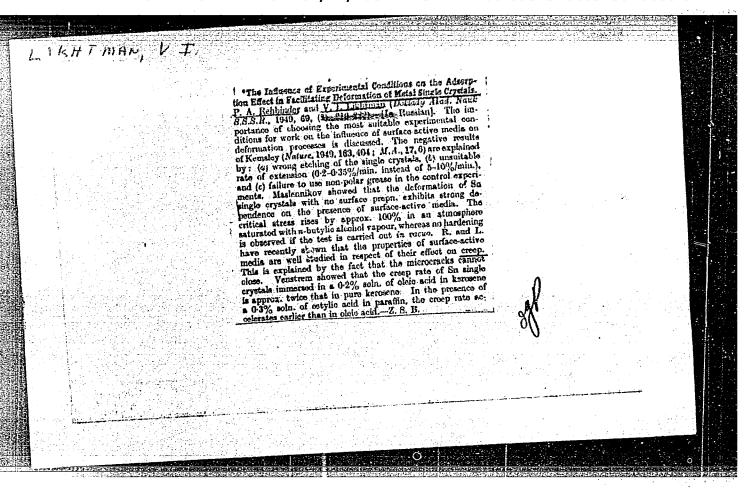


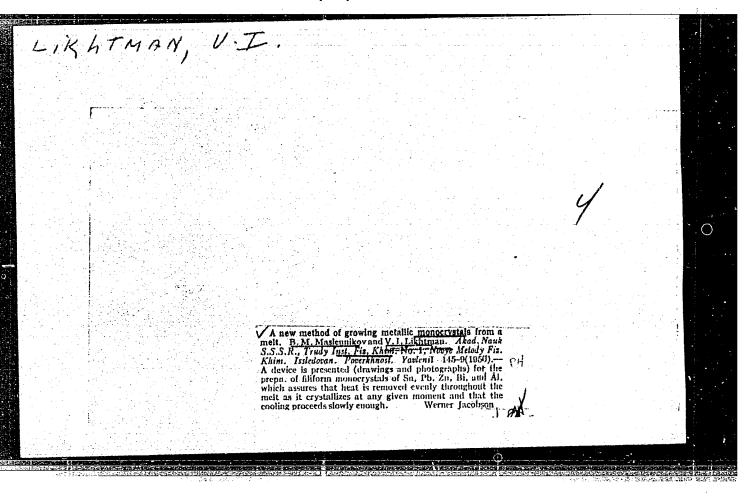


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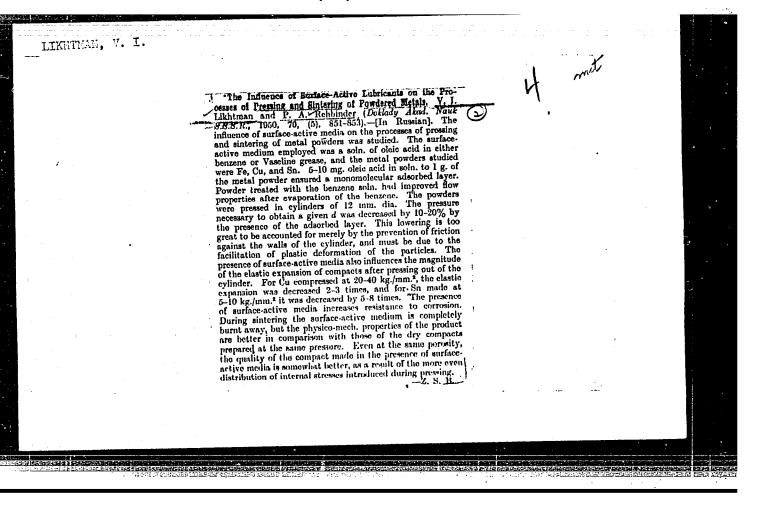


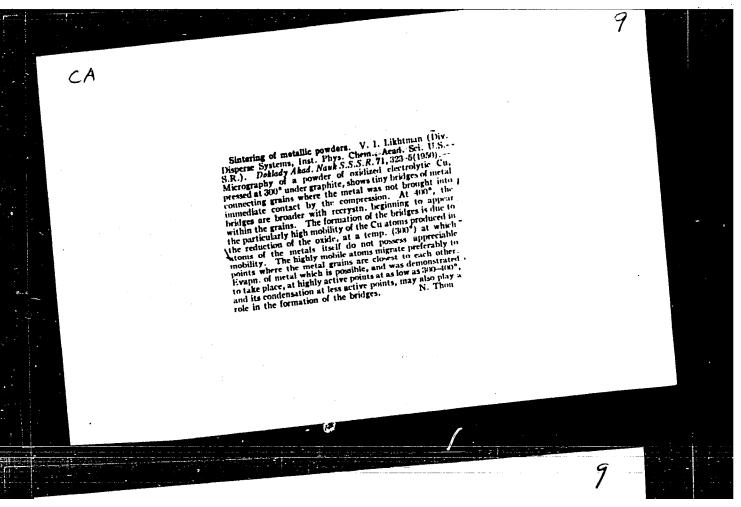




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LIMPTHAN, V. I.; MASLEMHIKOV, B. M.

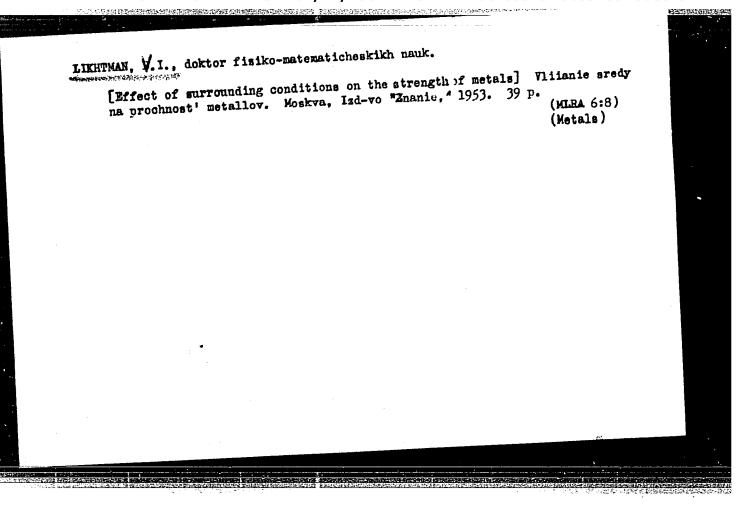
A new method for growing metal microcrystals from fusions. Trudy Inst.fiz.khimii AN SSSR, No. 1, 1952.

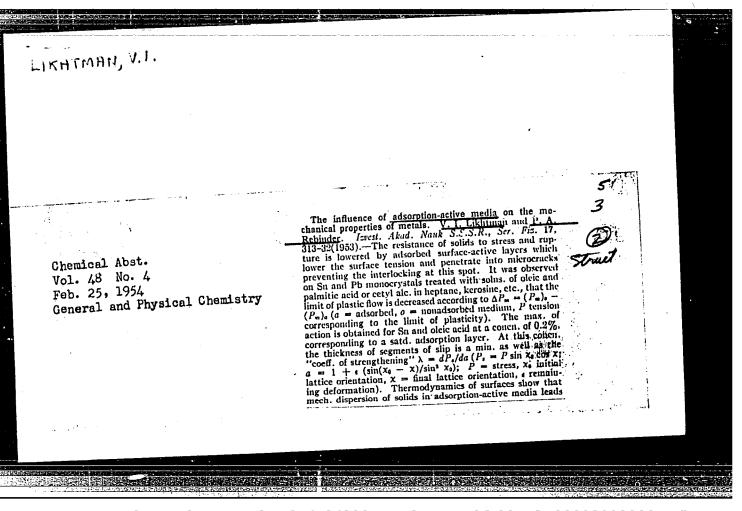
Monthly List of Russian Accessions, Library of Congress, December 1952. Unclassified.

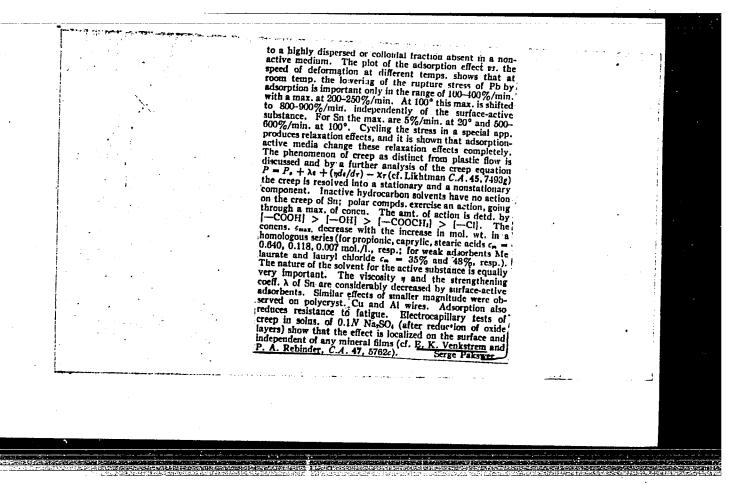
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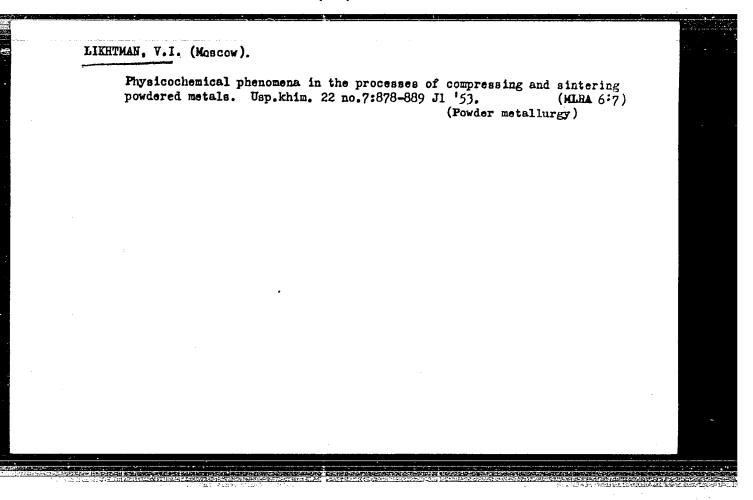
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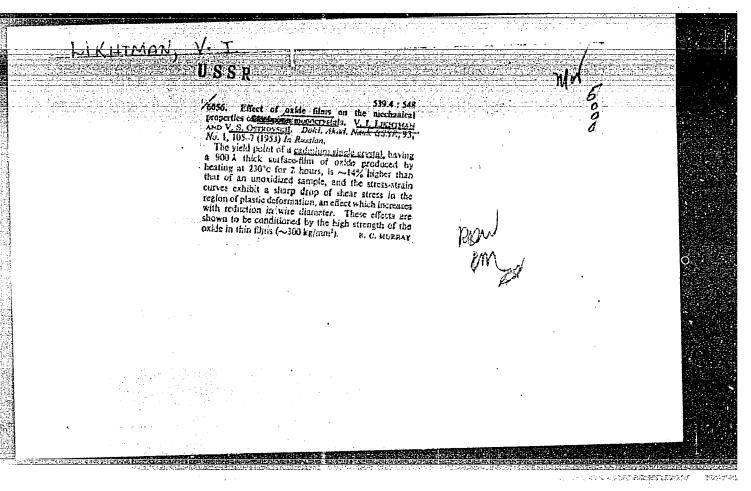
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LIKHTMAN	N, V. I.						PA 23	4T34	
	2341734	25 H &	there is formation of nonuniform austenite. The 3d process consists of the breaking down of the austenite during cooling into some structure which is dependent on the concn of carbon and the cooling range. Graphitization proceeds extremely rapidly in porous metalloceramic iron-	+ξ.Δτ1ξ.Z	Heat treatment of the metalloceramic compn of iron-graphite consists of 3 basic processes. First there is a qual and quant change in the contact surface, changing the system into one	"Dok Ak Nauk SSSR" Vol 86, No 6, pp 1151-1153	"Structural (Phase) Changes in the Metallocera- mic Composition of Iron-Graphite During Sinter- ing," V. I. Likhtman, I. N. Smirnova, Inst of Phys Chem, Acad Sci USSR	USSR/Chemistry - Metallurgy, Lubri- 21 Oct 52 cants	(
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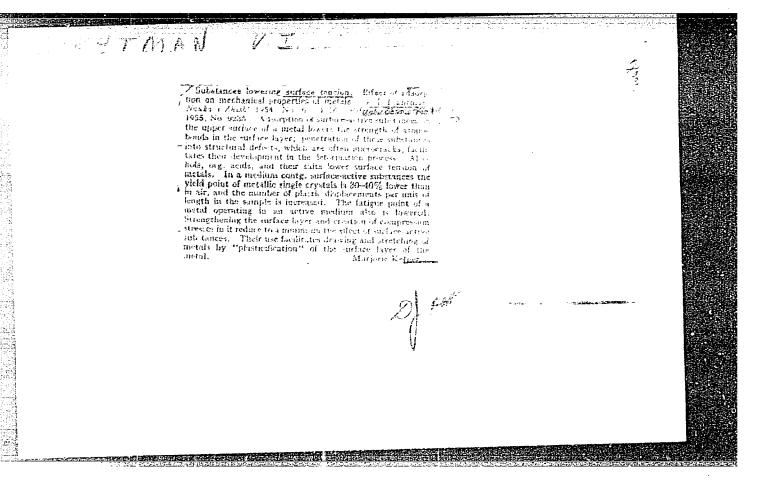












LIKHTHAN, V. I. USSR/ Miscellaneous - Materials Pub. 124 - 8/35 Card 1/1 Likhtman, V. I., Dr. of Phys-Math. Sc. Authors Commission of the Contract Con Antifriction metal-ceramic material Title Vest. AN SSSR 7, 50-52, July 1954 Periodical The process of manufacturing a new antifriction metal-ceramic (ferro-graphite) material as a suitable substitute for non-ferrous Abstract metals, is described. The special sintering and chilling methods, developed by the Institute of Physical Chemistry at the Acad. of Sc. USSR, which make it possible to manufacture antifriction metal-ceramic materials from powdered ferro-graphite without the possibility of formation of free cementite, which tend to destroy the antifriction properties of a material, are discussed. Institution: Submitted

LIKHTMAN, V.L.; REBINDER, P.A.; KARPENKO, G.V.; YEGOHOV, N.G., redaktor;

REVKATEVA, N.A., teklmicheskiy redaktor

[Hffect of a surface-active medium on processes of metal deformation]

[Viianie poverkhnostno-aktivnoi sredy na protsessy deformateii metalvliianie poverkhnostno-aktivnoi sredy na protsessy deformateii metallov. Moskva, Izd-vo Akademii nauk SSSR, 1954, 206 p. (MIRA 8:4)

(Deformation (Mechanics)) (Metals)

USSR/ Chemistry - Metallurgy

Card 1/1 Pub. 118 - 4/6

Authors : Likhtman, V. I.

Title : Physico-chemical phenomena during deformation of metals

Periodical : Usp. fiz. nauk 54/4. 587-618. Dec 1954

Abstract: It was established that the surrounding medium has a definite effect on the mechanical properties of metals particularly during their deformation. These effects were observed not only in the form of chemical corrosion but also in the adsorption (also reversible) of the typical surfacebut also in the adsorption (also reversible) of the typical surfacebut active substances from the surrounding media which greatly facilitates deformation and destruction of the metal. This latter effect is sometimes found much more intensive than the effect of direct chemical conversion. Adsorption usually attacks all kinds of surface defects which are inherent of metals. These defects develop continuously during elastic and plastic deformations and in addition they result in the formation of new

defects connected with plastic migrations over contact surfaces (sliding surfaces) in the deformed metal. Thirty-two references: 24 USSR; 3-German;

3-English and 2 USA (1928-1954). Tables; graphs.

Institution:
Submitted:

LIKHTMAN, V. I USSR/Physical Chemistry

Card 1/1

Ostrovskiy, V. S., and Likhtman, V. I. Authors

Effect of surface-active substances and oxide films on the Title:

process of deformation of cadmium monocrystals

Dokl. AN SSSR, 96, Ed. 2. 319 - 321, May 1954 Periodical

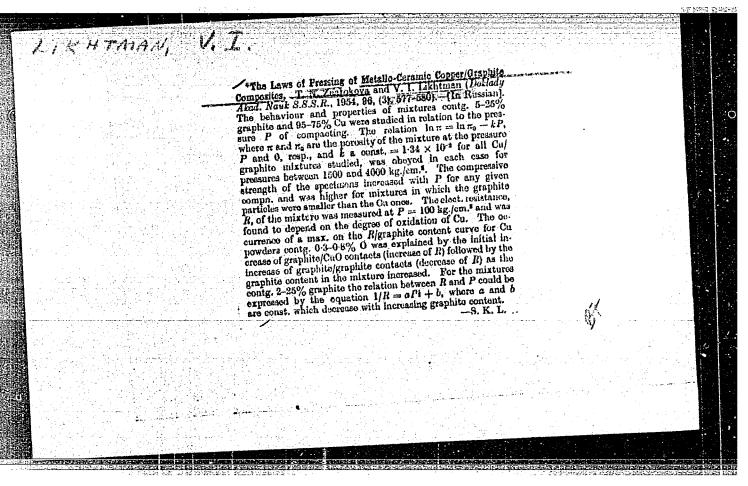
Investigation of the effect of surface active substances on the deformation of cadmium monocrystals oxidized and completely or Abstract

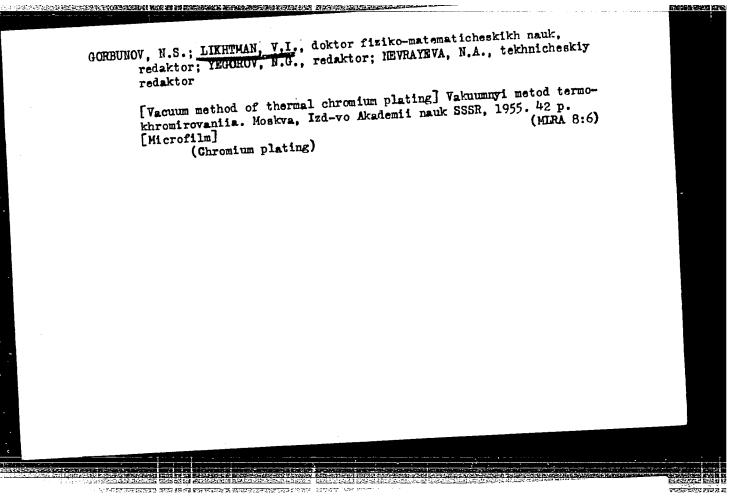
partially without oxide films was carried out in oleic acid solutions in iso-octane and n-butyl alcohol in water at optimum concentrations. Oxidation was achieved by heating the specimen in the air at 2300 for a period of 2 hrs. The thickness of the oxide film was ~ 900 R. Results are given in graphic form. Twelve

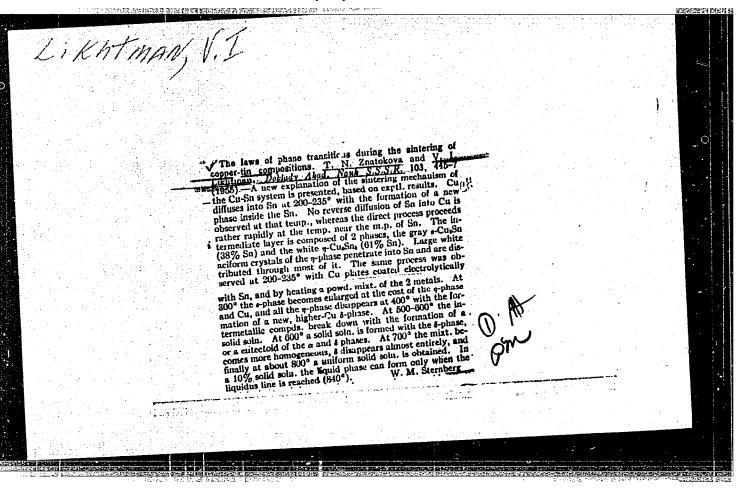
references; 8 USSR. Graphs.

Academy of Sciences USSR, Institute of Physical Chemistry Institution

Academician P. A. Rebinder, February 20, 1954 Presented by :







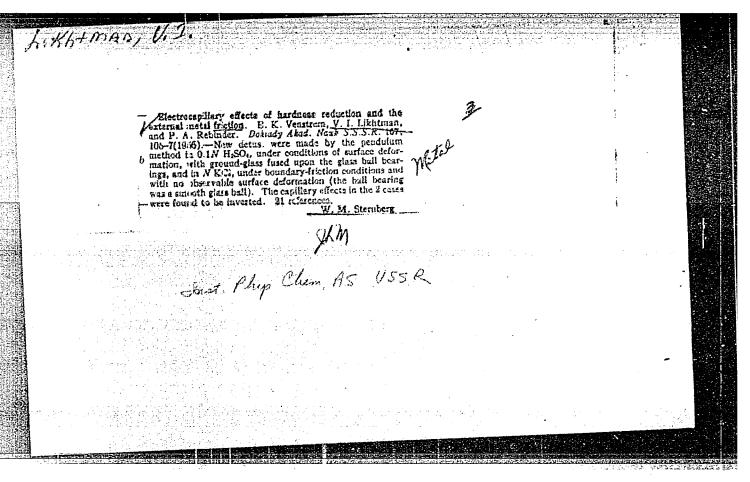
LIKHTMAN, V.I., doktor fisiko-matematicheskikh nauk.

Physical chemistry and the strength of solid bodies. Vest.

AM SSSR 26 no.9:8:13 S '56.

(Chemistry, Physical and theoretical) (Solids)

(Chemistry, Physical and theoretical)



LIKHTMAN, V.I.

Category : USSR/Solid State Physics - Mechanical properties of crystals and poly-

crystalline compounds

Abs Jour : Ref Zhur - Fizika, No 1, 1957 No 1360

Author

: Stupishina, O.V., Likhtman, V.I. : Inst. of Physical Chemistry, Academy of Sciences USSR Inst

: On Brittle Softening of Cast Steel Title

Orig Pub : Dokl. AN SSSR, 1956, 107, No 2, 252 - 254

Abstract : An investigation was made of the mechanical tension characteristic on the

degree of porosity of cast steel varying in hardness from 25 to 60 $\mathbf{R}_{\mathbf{c}}$. The most sensitive to the presence of micro-pores are the ultimate strength and the reduction at the meck. The yield point shows little dependence on the degree of porosity, and the proportional limit is practically independent of it. When the hardness of cast steel is increased, one observes a brittle softening of the steel, manifesting itself in a sharp decrease in strength when the hardness is increased above 38 -- 40 R. The authors attribute the appearance of brittle softening to the occurrence of strong overstresses r near the pores. At lower steel temperatures these overstresses are reduced to a considerable extent by the plastic deformation.

: 1/1 Card

> CIA-RDP86-00513R000929920005-5" APPROVED FOR RELEASE: 07/12/2001

LIKHTMAN, VI.

CAriu 1 / 2

CISTOTA, S.JA., VEJLER, V.D., LICHTMAN, V.I., REBINDER P.A. The Influence exercised by active Lubricants on the drawing of Metals. SUBJECT' AUTHOR

Dokl. Ekad. Nauk, 110, fasc. 4, 562 - 565 (1956) TITLE PERIODICAL

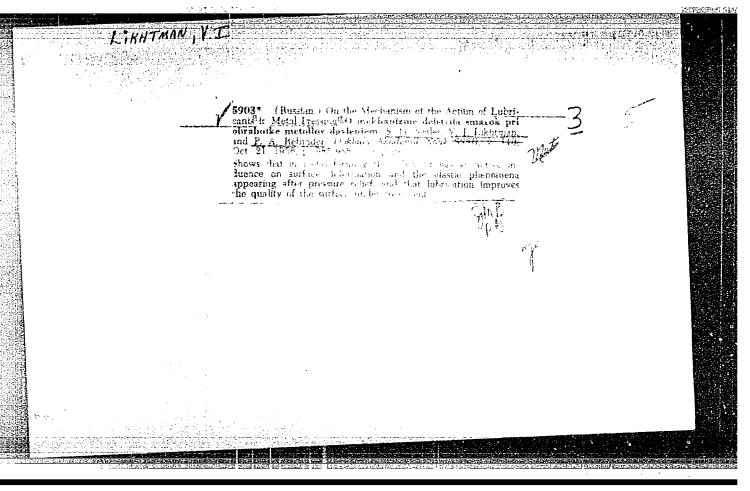
Issued: 12 / 1956

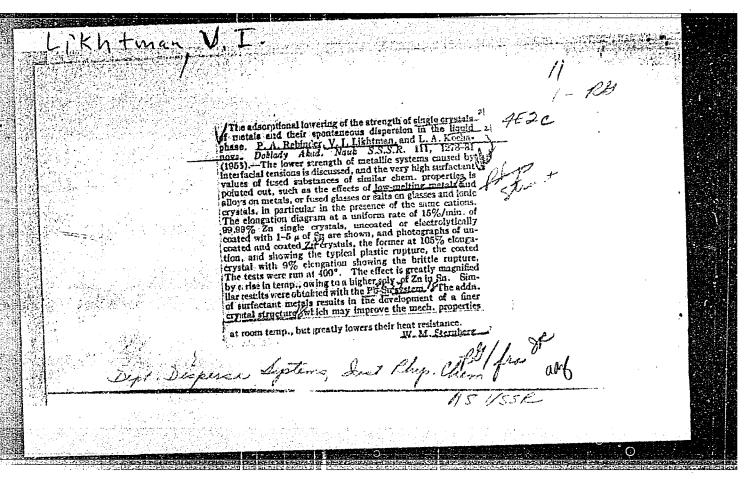
Here the rules and the mechanism of the influence exercised by lubricants on the drawing of a steel wire are investigated. On this occasion a wire made of steel O with the diameter of 1,97 mm was reduced to the diameter of 1,82 mm by drawing. Drawing velocity was 12 cm/min; drawing stress was measured by means of a dynamometer. The influence exercised on drawing by liquid hydrocarbons, alcohols and meter. The intruduce exercised on drawing by riquid hydrocarbons, accounts and acids was investigated at 20 and 60°. A diagram illustrates the modification of stress in dependence on the number of carbon atoms in the chain of the individual hydrocarbon. If the number of C-atoms in the molecule of the lubricant is increased, the stress caused by drawing diminishes. Hydrocarbons which are liquid at room temperature from hexane to zetane ($C_{16}^{H}_{34}$) diminish stress by 9%. In from methyl to

dexyl-alcohol as well as from proprion to pelargon acid at 20° stress is reduced by 23°/o. At 60° the effect of alcohols does not change, but the acids reduce stress by 40°/o. Mineral oils are little effective as lubricants especially at higher temperatures. The rather high efficacions of alcohols are tures. The rather high efficaciousness of alcohols and acids at 20° can be explained by the rather firm absorption binding of these substances binding them to the metal surface. This entails also a plastification of the surface layer of the metal in the presence of surface-active substances.

Such a mechanism recommends itself by numerous favorable tests with respect to the

CIA-RDP86-00513R000929920005-5" **APPROVED FOR RELEASE: 07/12/2001**





LIKHTMAN, V. I

AUTHORS: Znatokova, T. N. and Likhtman, V. I.

126-3-18/34

TITLE: Relations governing the pressing and the sintering of copper base cermet compositions. (Zakonomernosti pressovaniya i spekaniya metallokeramicheskikh kompozitsiy na mednoy

PERIODICAL: "Fizika Metallov i Metallovedeniye" (Physics of Metals and Metallurgy), 1957, Vol.4, No.3, pp. 511-518 (U.S.S.R.)

ABSTRACT: In cermet systems with interacting components the mechanism of formation of the structure in the process of sintering has characteristic features which are associated with the disperse nature of the starting powder materials. Study of this mechanism is essential from the point of view of controlling the properties of the manufactured components, improvement of their quality and elucidation of conditions observed in certain cases of changes in the properties during Of the various cermet systems the system copper-tin-graphite has not been adequately studied, although it is of practical interest since it is widely used for brushes in electrical machinery and as an antifriction Existing conceptions on the mechanism of structural transformations in this system are contradictory

as can be seen from the work of Hall, H.E. (1) and Wain, H.L.(2). Card 1/4

126-3-18/34

126-3-18/34

Relations governing the pressing and the sintering of copper base cermet compositions. (Cont.)

produced by applying pressures of 3000 kg/cm² and sintering in the temperature range 100 to 850 C. Several microstructure photos obtained from this material after various conditions of heat treatment are included. It is concluded that the process of sintering of copper-tin compositions can be sub-divided into the following four stages: melting of the tin and rapid cessation of the liquid phase as a result of formation of a η-phase; formation of an ε-phase at the boundary between the η -phase and the copper as a result of continuing diffusion; cessation of the ε -phase, occurrence and development of the σ -phase at the boundary between the ε -phase and the copper accompanied by enrichment of tin with the solid solution; decomposition of the δ -phase caused by the transfer of the entire tin into the solid solution and homogenization of the solid solution. In pressing copper-tin-graphite mixtures, graphite proved to have the same influence as it has in pressing copper-graphite mixtures, i.e. it increases appreciably the density and reduces the strength of the presslings, as can be seen from the numerical data given in Table 2, p.518; during sintering the influence of graphite consists in mechanical braking of

Card 3/4

126-3-18/34

Relations governing the pressing and the sintering of copper base cermet compositions. (Cont.)

the diffusion processes by screening the copper-tin contact surfaces. The general character of the transition from a mixture of individual particles to a uniform alloy during sintering in presence of graphite remains unchanged, since the graphite does not interact with copper or tin but the completion of the individual stages of sintering is shifted into the range of higher temperatures.

There are 2 tables, 6 figures and 11 references, 4 of which Card 4/4 are Slavic.

SUBMITTED: March 14, 1956, after revision May 5, 1956.

ASSOCIATION: Institute of Physical Chemistry. (Institut Fizicheskoy Khimii AN SSSR).

AVAILABLE: Library of Congress

CIA-RDP86-00513R000929920005-5" APPROVED FOR RELEASE: 07/12/2001

LIKHTMAN, VI.

AUTHOR: TITLE:

PA - 3564 VEYLER, S.YA., LIKHTMAN, V.I. Lubrication Action by Pressure Treatment of Metals. (Zakonomernosti

deystviya smazok pri obrabotke metallov davleniyem, Russian)

PERIODICAL:

Zhurnal Tekhn.Fiz. 1957, Vol 27, Nr 5, pp 1087-1094 (U.S.S.R.)

ABSTRACT:

In the case of high pressures the roughness of the surface is hardly of any importance, whereas the molecular cohesion of the cooperating metal surfaces plays a decisive part. The tangential displacement of these metals cannot immediately disrupt molecular connection, but a plastic flux is caused on the surface of the softer and more plastic metal, which penetrates to a considerable depth. Thus we are allowed to speak of friction or frictional forces only under certain

conditions. Action upon the metal and elastic release in the presence of lubricants was investigated during calibration by means of a ball, during deep drawing and wire drawing. Experiments showed that processes during the action of lubricants on the occasion of different metal working processes are the same, but that in dependence on the character of the state of stress and the kind of deformation, these processes develop in different manners. In some cases the lubricants

Card 1/2

PA - 3564

Lubrication Action by Pressure Treatment of Metals.

prevent an additional consolidation of the surface layer of the metal treated, and in others they promote such consolidation. (With 1 Table, 7 Illustrations, and 9 Slavic References).

ASSOCIATION:

Institute for Physical Chemistry, Moscow

PRESENTED BY:

SUBMITTED:

5.7.1956

AVAILABLE:

Library of Congress

Card 2/2

20-114-6-24/54

AUTHORS:

Veyler, S. Ya., Likhtman, V. I.

TITLE:

Laws Governing the Drawing of Metals in the Presence of Lubricants (O zakonomernostyakh volocheniya metallov v pri-

sutstvii smazok)

PERIODICAL:

Doklady Akademii Nauk SSSR,1957,Vol.114,Nr 6,pp.1224-1227(USSR)

ABSTRACT:

Like all other processor the working of metals under pressure the drawing of a metal does not only depend on the overcoming of the metal's resistance to deformation, but also on the overcoming of the friction forces which develop on the contact surface metal-instrument. At high pressures the friction mainly consists of the flow of the surface layer of the softer metal. The process of drawing consists of the volume deformation of the metal and of an additional shearing deformation of the metal to be worked, which latter is due to the seizing of the metal by the instrument. The first process, i.e. the drawing itself, is necessary and useful. But the second process is harmful, because it requires the complete utilization of the deformability of the metal and because it consumes much energy. The force necessary for the volume deformation of the

Card 1/3

TRADER ARRIVA

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R000929920005-5"

Sales and the Commercial Section (1997)

20-114-6-24/54

Laws Governing the Drawing of Metals in the Presence of Lubricants metal (without friction) alone can be represented as F_4 = = $P_m S^* \sin \alpha = P_m \Delta S$. The force necessary for the additional shearing deformation of the surface layer satisfies the equation $F_2 = \tau_1 S_k$. Thus the following applies to the force necessary for drawing: $F = F_2 + F_1 = \tau_1 S_k + P_m \Delta S$. P_m here signices and $P_m = P_m + P_m \Delta S$. fies a certain mean stress to which the metal is exposed on passage through the opening, $\Delta s = S - S$ - means the reduction of the cross section of the metal wire or the metal strip due to drawing, ∞ - the ∞ ne angle, τ_1 - the maximum shearing stress or the resistance to cutting, s_k - the surshearing stress or the resistance to cutting. face area of the contact between metal and instrument. A table contains the results on the drawing of copper and brass strips. The active lubricant influences only the first term of the above-given formula for F, the second term is almost independent of the presence or the quality of the lubricant. The here obtained results may also be applied to other processes of the working of metals under pressure. There are 2 figures, 3 tables, and 7 references, 6 of which are Slavic.

Card 2/3

LIKHTMAN, V. I.

20-3-18/46

Veyler, S. Ya., Likhtman, V. I., Rebinder, P. A., Academician

Adsorption Plastification of a Surface Layer Under the Influence AUTHORS: of Lubricants at the Pressure Working of Metals (Adsorbtsionnoye TITLE:

plastifitsirovaniye poverkhnostnogo sloya pod vliyaniyem smazok

pri obrabotke metallov davleniyem) Doklady AN SSSR, 1957, Vol. 116, Nr 3, pp. 415 - 418 (USSR)

The authors illustrated the following: The essential part of the PERIODICAL: effect of liquid active lubricants at pressure working of metals ABSTRACT:

is not the exterior friction but the resistance of the treated metals against the flow in a quite thin surface layer. This resistance determines the intensity of the tangential stress which occurs in the surface layer of the deformed metals. The liquid active lubricants reduce strongly the additional shearing deformation of the surface layer of the treated metal. The strong reduction of the "effective" friction coefficient (of the tangential

stress) is caused by the localisation of the plastic friction in a thin layer of the softer covering metal. Stronger thinner coverages (nitration, carburization, chromium plating) impair upon the

drawing process by intensification of the tangential stress. The shearing resistance \mathcal{T}_1 of the layer as computed by the measurements

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CIA-RDP86-00513R000929920005-5" **APPROVED FOR RELEASE: 07/12/2001**

20-3-18/46

Adsorption Plastification of a Surface Layer Under the Influence of Labricanto at the Pressure Working of Metals

of the authors does not depend on the properties of the principal metal. Inactive metals (oktane, vaseline-oil) lead to an increase of J at an effected increase of the degree of deformation at drawing. The surface-active lubricants cause a decrease of S at an increase of the deformation degree. A diagram illustrates these changes for aluminum bands which are drawn out in active lubricants. These data show clearly that the effect of the surface.. -active liquid lubricants upon the adsorption plastification of a very thin surface layer of the treated metal is reduced. To estimate the thickness of the plastificated layers "model experiments" on the influence of thin coverage of a soft metal upon the stress of a wire which is drawn out were carried out. A diagram illustrates this influence on example of a wire which has been covered with copper before. The influence of the oxide film han to be brought into consideration on occasion of the investigation. To a large extent the adsorption plastification can explain the influence of the surface-active media at boundary friction. (Particularly at high temperatures). There are 3 figures, 1 tables, and 12 references, 11 of which are Slavic.

Card 2/3

20-3-18/46

Adsorption Plastification of a Surface Layer Under the Influence of Lubricante

at the Pressure Working of Metals

Institute for Physical Chemistry of the AN USSR ASSOCIATION:

(Institut fizicheskoy khimii Akademii nauk SSSR)

June 29, 1957 SUBMITTED:

Library of Congress AVAILABLE:

Card 3/3

CIA-RDP86-00513R000929920005-5" APPROVED FOR RELEASE: 07/12/2001

LIKHTMAN, V. I. and OSTROVSKIY, V. S.

"On the Rheology of Metals in Active and Surface-active Media."
report submitted Third Intl. Congress of Rheology, Bad Oeyngausen, GFR, 23-30 Sep 58.

Likhlman,

AUTHOR:

Solomonov, M.

SOV/24-58-4-36/39

TITLE:

Application of Technological Lubricants and Special Coatings During Shaping of Metals by Applying Pressure (Primeneniye tekhnologicheskikh smazok i spetsial'nykh

pokrytiy pri obrabotke metallov davleniyem) Conference at the Institute for Mechanical Engineering of the Ac.Sc. USSR (Soveshchaniye v Institute mashino-

vedeniya Akademii nauk SSSR)

PERIODICAL:

Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh

Nauk, 1958, Nr 4, p 153 (USSR)

ABSTRACT: The conference was held in December, 1957. The following papers were read: "General Relations and the Mechanism of Operation of Lubricants During Shaping of Metals by Operation of Lubricants During Shaping of Metals by Applying Pressure" by V.I. Likhtman, S.Ya. Veyler (Institut fizicheskoy khimii AN SSSR - Institute of Physical Chemistry of the Ac.Sc.USSR); "Application of Physical Constitute of the Ac.Sc.USSR); "Application of Physical Constitute of the Pressure of the Pressu Principles of the Hydrodynamic Theory to the Process of

Cold Stamping" by Ye.I. Isachenkov (NIAT); "New Stamping Labricants for Deep and Particularly for Very Deep Drawing of Components made of Sheet Steel" by M.A. Sil'tsova (Gor'kovskiy avtozavod - Gor'kiy Automobile Works); "Lubricants for Stamping Sheet of Steel and of Various Alloys" by Yu.P. Davydov (VIAM);

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APPROVED FOR RELEASE: 07/12/2001

CIA-RDP86-00513R000929920005-5"

SOV/24-58-4-36/39

Application of Technological Lubricants and Special Coatings During Shaping of Metals by Applying Pressure Conference at the Institute for Mechanical Engineering of the Ac.Sc.USSR

"New Lubricants for Wire Drawing" by A.G. Smirnova (TSNIICHERMET); "Investigation of Technological Lubricants Applied for Hot Stamping of Metal Components" by S.A. Dovnar (Minskiy politekhnicheskiy institut im. I.V. Stalina - Minsk Polytechnical Institute imeni I.V. Stalin); "Investigation and Testing of Certain Technological Lubricants and Methods of Applying these on the Dies of Presses During Hot Stamping of Aluminium Alloys" by E.R. Shor (TsNIITMASh); "Lubricants Used in Shaping of Metal by Pressure" by Ye.B. Zhuravskiy (Aviatsionnyy zavod - Aviation Works). The data given in the individual papers show the increasing use of liquid, paste and solid technological lubricants and special coatings in highly efficient processes of shaping metals by applying pressure in the production of complicated components from various heavy and light non-ferrous alloys. The undertakings of the chemical and the oil industries have so far not organised the

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SOV/24-58-4-36/39

Application of Technological Lubricants and Special Coatings During Shaping of Metals by Applying Pressure Conference at the Institute for Mechanical Engineering of the Ac.Sc.USSR

production of the appropriate lubricants and the instrument industry does not produce instruments for determining the main parameters of these lubricants. So far, investigations by individual institutes of the Ac.Sc. USSR on technological lubricants have not been carried out on a sufficiently large scale and have not been adequately coordinated. The same applies to other institutes.

S. Ya. Veyler (Institut fizicheskoy khimii AN SSSR -Institute of Physical Chemistry of the Ac.Sc.SSSR) reported on work in the field of lubricants for cold stamping. Since the result of this work is little known, it was proposed to devote to it a specially convened extended seminar at the Institute of Mechanical Engineering

of the Ac.Sc.USSR. Co-ordination was urged of the research work in the use of lubricants for shaping of metals by pressure and this

Card3/4

CIA-RDP86-00513R000929920005-5"

APPROVED FOR RELEASE: 07/12/2001

SOV/24-58-4-36/39

Application of Technological Lubricants and Special Coatings During Shaping of Metals by Applying Pressure Conference at the Institute for Mechanical Engineering of the Ac.Sc.USSR

task should be undertaken by the Laboratoriya obrabotki metallov davleniyem Instituta mashinovedeniya AN SSSR (Laboratory for Shaping of Metals by Pressure of the Institute of Mechanical Engineering of the Ac.Sc.USSR). The importance was pointed out of putting onto the market instruments for determining the main parameters of lubricants and also of automatic equipment for coating dies with technological lubricants. It is necessary to work out standard specifications for technological lubricants and also recipes and methods of analysis of such lubricants and to increase the manufacture by the industry of standard technological lubricants. At regular intervals, symposia should be published on technological lubricants and special coatings used in the shaping of metals by applying pressure.

Card 4/4

AUTHORS:

Ostrovskiy, V.S., Likhtman, V.I.

SOV-69-20-5-17/23

TITLE:

The Rheology of Metals in Surface-Active Media (K reologii

metallov v poverkhnostno-aktivnykh sredakh)

PERIODICAL:

Kolloidnyy zhurnal, 1958, Vol XX, Nr 5, pp 640-644 (USSR)

ABSTRACT:

Plastic metals are similar to a viscous medium in many machining and deformation processes. The rheological laws of the creep of polycrystalline tin and lead under the conditions of homogeneous shear deformation are here investigated. The form of the tested specimens is given in Figure 1. The curves for the creep of tin are given in Figure 2. The speed of the established creep increases with the stress. Figure 3 shows the rheological curves for tin. At small stresses and at a temperature of 20°C, there is a section of linear dependence between the stress and the creep speed. If the temperature is increased, the transition from the linear part of the curve to the curvilinear, begins earlier. Figure 5 shows the dependence of stress and creep speed for high stress values and for temperatures of 20 and 86°C. At these temperatures, a sharp increase of speeds within small limits of stress changes is observed.

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. The Rheology of Metals in Surface-Active Media

SOV-69-20-5-17/23

Surface-active substances considerably influence the creep curves. The values are higher than in air, with the stress remaining constant. The maximal effect is reached near the upper border of the field of constant plastic viscosity (Figure 7). There are 6 graphs, 2 tables, 1 diagram, and

4 Soviet references.

ASSOCIATION: Institut fizicheskoy khimii AN SSSR,Otdel dispersnykh sistem, Moskva (Institute of Physical Chemistry of the USSR

Academy of Sciences, Department of Dispersed Systems, Moscom)

SUBMITTED: June 16, 1958

1. Metals--Deformation 2. Metals--Temperature featers

Card 2/2

LIKHTMAN, V. I.; BARTENEV, G. M.; SHCHUKIN, Ye. D.; REBINDER, P. A.;

"Deformation processes, the rheological conduct and the destruction of solids and metals."

report presented at the Fourth All-Union Conference on Colloidal Chemistry, Thilisi, Georgian SER, 12-16 May 1958 (Koll shur, 20,5, p.677-9, '58, Taubman, A.B)

AUTHORS:

Veyler, S. Ya., Likhtman, V. I.

sov/57-28-9-25/33

TITLE:

Action of Lubricants in the Pressure Working of Metals (Deystviye smazok pri obrabotke metallov davleniyem)

PERIODICAL:

Zhurnal tekhnicheskoy fiziki, 1958, Vol 28, pp. 2025-2034 (USSR)

ABSTRACT:

This is a study of the action of lubricants in the drawing of wire and of strip metal. The drawing process proceeds in two stages: 1) A deformation of the metal according to the required degree of deformation and 2) additional shearing deformations in the surface layer of the worked metal. This is caused by the clutching action of the drawing tool. The first stage, the actual drawing process, is desired and necessary, whereas the second process is detrimental. The design of a device is described which permits modelling.

Octane, octyl alcohol, oleinic acid, and paraffin were used as lubricants. The forces required in drawing are exactly proportional to the degree of deformation and are under the prevailing conditions practically independent of the lubricant. This was found with aluminum—and copper strips. Hence the force required for the deformation in freely rotating rollers is only dependent upon the properties of

Card 1/4

Action of Lubricants in the Pressure Working of Metals SOV/57-28-9-25/33

the metal (p_m) and upon the reduction of the cross-sectional area (\triangle s). The force required for the additional deformation is determined from the difference in the stationary (fixed) and in the freely rotating rolls: $\tau_1 s_k = F - p_m \Delta_s$, where τ_1 denotes the maximum shear stress or shear resistance, s, the area of the contact surface between the metal and the tool, and F the force. The force required for drawing $F = F_1 + F_2 =$ = $t_1^s k + p_m \Delta_s$: Formula (4), When liquid lubricants are used, the predominant feature is not the viscosity but the capability of the metal to become "plastified" in the thinnest surface layers. Numerous examples show that small admixtures of surface-active layers $(0,2 \div 0,3\%)$ to the water and oil media considerably increase the effectiveness of these media although their viscosity is not influenced at all. The resistance of the deformation exhibited by the thinnest layers of the boundary, being the essential feature as compared to external friction, determines the magnitude of the shear stresses in the surface layer. Inactive fluid media (octane, vaseline oil) lead to an increase of τ_1 when the degree of deformation

Card 2/4

Action of Lubricants in the Pressure Working of Metals SOV/57-28-9-25/33

in the drawing of metal strips is increased. Surface-active lubricants, however, reduce τ_1 when the degree of deformation is increased. Inactive solid lubricants (paraffin) lead to the greatest reduction of τ_1 on soft metals, because the shear is localized in the thin coating outside the metal. If, however, harder metals (steel) are drawn the external layers of the lubricant coating are broken down. Thus the surface-active fluid lubricants are most effective in this case. The experiments showed that in the investigation of the "plastification" the influence of the oxide films must be taken into account and that with tin and lead they reduce $\boldsymbol{\tau}_1$. Conclusions: The absorption plastification of surface layers in the presence of active lubricants and the localization of plastic deformations in the thin surface layers explain the mechanism of the action of lubricants in the pressure working of metals. There are 13 figures, 4 tables, and 8 references, 7 of which are Soviet.

ASSOCIATION: Card 3/4

Institut fizicheskoy khimii AN SSSR, Moskva (Institute of Physical Chemistry, AS USSR, Moscow)

AUTHORS:

Likhtman, V. I., Shchukin, Ye. D.

SOV/53-66-2-4/9

TITLE:

Physico-Chemical Phenomena in the Deformation of Metals (Fiziko-khimicheskiye yavleniya pri deformatsii metallov)

PERIODICAL:

Uspekhi fizicheskikh nauk, 1958, Vol 66, Nr 2, pp 213-245

(USSR)

ABSTRACT:

In the course of the past 10 years a new field of science was opened up by an association of Soviet scientists headed by P. A. Rebinder: the so-called physico-chemical mechanics, which is a field bordering upon those of physical chemistry, molecular physics, and the mechanics of materials. The main aims of this new field of science are: 1) Explanation of the laws and the mechanism of the production of solids of given structure and mechanical properties, and 2) the investigation of processes of deformation, of the working up and of the destruction of solids in consideration of the influence exercised by physico-chemical factors, the composition and structure of the body, of temperature and of the surrounding medium. Extensive experimental material is now available in this field upon the basis of which it is possible to develop a theory of the processes of production

Card 1/2

507/53-66-2-4/9

Physico-Chemical Phenomena in the Deformation of Metals

and destruction of solid materials as well as of the conditions for the best method of processing. Theoretical work is based upon the dislocation theory. The authors of the present paper give an extensive and, in parts, detailed survey of the principal results obtained by investigations carried out in this field during recent years; results obtained are discussed on the basis of numerous references to publications. The results of the physico-chemical mechanics of metals are also subjected to theoretical treatment (dislocation theory). The most frequently used materials for investigations were zinc and zinc monocrystals. There are 26 figures, 4 tables, and 69 references, 29 of which are Soviet.

Card 2/2

AUTHORS:

Likhtman, V. I., Ostrovskiy, V. S.

20-119-3-23/65

TITLE:

The Rules Governing the Plastic Flow of Lead and Tin Under the Conditions of a Clean Shear (Zakonomernosti plasticheskogo techeniya svintsa i olova v usloviyakh chistogo sdviga)

PERIODICAL:

Doklady Akademii Nauk SSSR, 1958, Vol. 119, Nr 3, pp. 484-487 (USSR)

ABSTRACT:

First the authors give a short report on the state of the problem and on previous works, dealing with the same subject. This work studies the rheological properties of timand lead under the conditions of a simple state of tension, which forms on occasion of the deformation by clean shear. The device, used by the authors, resembles the one of E. N. Andrade and K. H. Jollife (ref. 4). The samples, tested by this device, were disks, which were fixed at their periphery and in the center. The stress, which considerably remained below the flow limit, was caused by a rotation of the central part of the disk against its peripheral part. Into the disk-shaped test piece a concentric groove was cut, in which under stress a deformation with clean shear develops. After their mechanical working the test pieces were also annealed in an inert

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The Rules Governing the Plastic Flow of Lead and Tin Under 20-119-3-23/65 the Conditions of a Clean Shear

atmosphere, so that the mean size of the grain is not be below a certain limiting value. A diagram illustrates the dependence of the velocity v_m of stationary flowing or the applied stress P for lead and tin. The intial domains of this curves are rectilinear. I.e. in a certain, relatively narrow interval with low tensions v_{m} is directly proportional to the applied stress P. On this occasion a noticeable flow of tin or lead starts only after having reached a certain flow limit. This flow limit in the here discussed experiments is at $t=20^{\circ}\text{C}$ for lead $P_0=95~\text{g.mm}^{-2}$ and for tin $P_0=87~\text{g.mm}^{-2}$. In a certain interval of tension, which neighbours the flow limit, the expression P = P₀ + Nov_m holds, whereby the viscosity no is a constant quantity. The effective viscosity of the here examined metals decreases continuously in case of an increase of the applied stress and therefore cannot serve as a physical parameter, which characterizes a given metal. The plastic viscosity of the metal, characterized after Shvedov by the relationship $P=P_0=\eta_0^*v_m$, remains constant in a certain stress interval, which follows the flow limit Po; there it does not depend on the applied shear stress and then decreases in case of further increase of the stress.

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The Rules Governing the Plastic Flow of Lead and Tin Under 20-119-3-23/65 the Conditions of a Clean Shear

This highest constant value of the plastic viscosity is suited as a physical characteristic of the metal. A further diagram illustrates the adsorption-conditioned allevation of the plastic flow of lead and tin as a function of the applied shear stress. The maximum effect in lead and also in superior limit of the domain of constant viscosity. Finally the authors express their gratitude to the Member of the discussion of the results, which were found here. There are 4 figures and 7 references, 5 of which are Soviet.

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October 10, 1957, by P. A. Rebinder, Member, Academy of

SUBMITTED:

September 25, 1957

AVAILABLE:

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Card 3/3

SOV/20-120-4-19/67

AUTHORS:

Likhtman, V. I., Kochanova, L. A., Bryukhanova, L. S.

TITLE:

The Prittle Destruction of Single Zinc Crystals (O khrupkom

razrushenii monokristallov tsinka)

PERIODICAL:

poklady Akademii nauk SSSR, 1958, Vol. 120, Nr 4, pp.757-760

(USSR)

ARSTRACT:

The single-crystal samples were produced from pure zinc (99,99%) by the method of zone-crystallization which had been developed in the authors' laboratory. The rules governing the brittle destruction of single zinc crystals with different initial orientations of the basic plane with different to the axis of the wire $(13 \le \chi \le 80^\circ)$ were investigated by means of uniaxial rotation with constant velocity tigated by means of uniaxial rotation with constant velocity of the extension $(\sim 12\% \text{ min}^{-1})$ of the samples in inactive and surface active rodic $(\sim 12\% \text{ min}^{-1})$ and surface-active media. A diagram shows the results of the experiments carried out with single zinc crystals at the temperature of liquid nitrogen. The plastic displacement preceding the destruction is all the greater the smaller X of Besides, the normal tensions necessary for the break in the

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sov/20-120-4-19/67

The Brittle Destruction of Single Zinc Crystals

basal plane decrease considerably with increasing χ . The brittle breaking off on the basal plane is facilitated by a previous displacement in this plane. At relatively high normal tensions in the basal plane a slight displacement will already be sufficient to cause elastic breaking off. The experimental data obtained gave the following results: The so-called Zonke Law of the constancy of vertical normal tensions does not apply to single zinc crystals in a brittle state. Plastic displacement causes defects in crystal structure which prove to be the original cause of destruction. No "consolidation when breaking off" was observed in the case of single zinc crystals. The rules governing the brittle destruction in single zinc crystals at low temperatures apply also if transition to the brittle state occurs under the influence of a strong surface-active medium (e.g. mercury). A brittle state of a single zinc crystal that is caused by mercury satisfies the same general regular rules as the viscosity due to low temperatures. There are 4 figures, 1 table, and 15 references, 8 of which are Soviet.

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The Brittle Destruction of Single Zinc Crystals

507/20-120-4-19/67

ASSOCIATION: Institut fizicheskoy khimii Akademii nauk SSSR

(Institute of Physical Chemistry AS USSR)

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1. Single crystals--Mechanical properties 2. Single crystals-Test

methods 3. Zinc--Crystallization 4. Zinc--Fracture

Cerd 3/3

24(2) AUTHORS:

Labzin, V. A., Likhtman, V. I.

SOV/20-121-3-13/47

TITLE:

The Creep of Single Crystals of Zine in Easily Fusible Metallic Melts (Polzuchest monokristallov tsinka v legko-

plavkikh metallicheskikh rasplavakh)

PERIODICAL:

Doklady Akademii nauk SSSR, 1958, Vol 121, Nr 3,

pp 443 - 445 (USSR)

ABSTRACT:

According to the results of previous papers, creep

velocity is noticeably increased by the absorption

of molecules with lower surface tension which are contained in the surrounding medium. Therefore it is interesting to investigate the creep of metallic monocrystals in media with a much lower surface tension (for example, in easily melting metals). Tin and lead, and also alloys of these metals (mixed in various relations) were used as media with lower surface tension. The zino monocrystals were electrolytically coated by the easily melting metal.

The creep of the monocrystallic zinc wires (with and without metallic coating, with lower surface tension) was

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The Creep of Single Crystals of Zinc in Easily Fusible SOV/20-121-3-13/47 Metallic Melts

investigated within the temperature range between room temperature and 350-400°. At low temperatures (up to melting of the surface coatings), the surface coatings noticeably reduce the velocity of the steady creep. In the presence of a tin coating, a noticeable increase by 15 times its amount of the velocity of the steady creep of zinc monocrystals begins at 250°. The coating of zinc monocrystals by thin lead films reduces the velocity of the steady creep at any temperature. The above mentioned and also other results of this paper agree fully with results of previous papers. There are 2 figures, 2 tables, and 6 references, 6 of which are Soviet.

ASSOCIATION:

Saratovskiy pedagogicheskiy institut (Saratov Pedagogic Institute) Institut fizicheskoy khimii Akademii nauk SSSR

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March 5, 1958

Card 2/2

KAMPENKO, Georgiy Vladimirovich, prof., doktor tekhn.nauk; LIKHTMAN,
V.I., prof., doktor fiz.-mat.nauk, retsenzent; FURER, P.Ts.,
red.izd-va

[Effect of machining on the strength and resistance of steel]
Vliianie mekhanichaskoi obrabotki na prochnost' i vynoslivost'
stali. Moskva, Gos.nauchno-tekhn.izd-vo mashinostrott.lit-ry.
1959. 184 p.

(Steel--Testing)

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